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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/660,394	09/12/2000	Tsunemori Yoshida		6909

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EXAMINER

WEINER, LAURA S

ART UNIT PAPER NUMBER

1745

5

DATE MAILED: 06/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/660,394	YOSHIDA
	Examiner Laura S Weiner	Art Unit 1745
<i>-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --</i>		
<b>Period for Reply</b>		
<p>A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.</p> <ul style="list-style-type: none"> <li>- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.</li> <li>- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.</li> <li>- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.</li> <li>- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).</li> <li>- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).</li> </ul>		
<b>Status</b>		
<p>1)<input checked="" type="checkbox"/> Responsive to communication(s) filed on <u>03 June 2002</u>.</p> <p>2a)<input checked="" type="checkbox"/> This action is FINAL.      2b)<input type="checkbox"/> This action is non-final.</p> <p>3)<input type="checkbox"/> Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under <i>Ex parte Quayle</i>, 1935 C.D. 11, 453 O.G. 213.</p>		
<b>Disposition of Claims</b>		
<p>4)<input checked="" type="checkbox"/> Claim(s) <u>1-5 and 8-15</u> is/are pending in the application.</p> <p>4a) Of the above claim(s) _____ is/are withdrawn from consideration.</p> <p>5)<input type="checkbox"/> Claim(s) _____ is/are allowed.</p> <p>6)<input checked="" type="checkbox"/> Claim(s) <u>1-5, 8-15</u> is/are rejected.</p> <p>7)<input type="checkbox"/> Claim(s) _____ is/are objected to.</p> <p>8)<input type="checkbox"/> Claim(s) _____ are subject to restriction and/or election requirement.</p>		
<b>Application Papers</b>		
<p>9)<input type="checkbox"/> The specification is objected to by the Examiner.</p> <p>10)<input type="checkbox"/> The drawing(s) filed on _____ is/are: a)<input type="checkbox"/> accepted or b)<input type="checkbox"/> objected to by the Examiner.</p> <p style="margin-left: 20px;">Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).</p> <p>11)<input type="checkbox"/> The proposed drawing correction filed on _____ is: a)<input type="checkbox"/> approved b)<input type="checkbox"/> disapproved by the Examiner.</p> <p style="margin-left: 20px;">If approved, corrected drawings are required in reply to this Office action.</p> <p>12)<input type="checkbox"/> The oath or declaration is objected to by the Examiner.</p>		
<b>Priority under 35 U.S.C. §§ 119 and 120</b>		
<p>13)<input type="checkbox"/> Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).</p> <p>a)<input type="checkbox"/> All b)<input type="checkbox"/> Some * c)<input type="checkbox"/> None of:</p> <p>1.<input type="checkbox"/> Certified copies of the priority documents have been received.</p> <p>2.<input type="checkbox"/> Certified copies of the priority documents have been received in Application No. _____.</p> <p>3.<input type="checkbox"/> Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).</p> <p>* See the attached detailed Office action for a list of the certified copies not received.</p> <p>14)<input type="checkbox"/> Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).</p> <p>a)<input type="checkbox"/> The translation of the foreign language provisional application has been received.</p> <p>15)<input type="checkbox"/> Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.</p>		
<b>Attachment(s)</b>		
<p>1)<input type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2)<input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3)<input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____</p> <p>4)<input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) _____</p> <p>5)<input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6)<input type="checkbox"/> Other: _____</p>		

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## DETAILED ACTION

### *Response to Amendment*

1. Examiner acknowledges the cancellation of claims 6-7 cited in Amendment A dated 6-3-2002. Claims 1-5, 8-15 have been examined on their merits.

### *Response to Arguments*

2. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

The rejection of claims 1-2, 5, 8-9, 11-15 remain rejected under 35 U.S.C. 102(e) as being anticipated by Braun et al. (6,180,275) because Braun et al. teaches a composition containing 45-95 wt% graphite powder [85-97 wt%], 5-50 wt% polymer resin [3-15 wt%] and 0-20 wt% metallic fiber, carbon fiber and/or carbon nanofiber and teaches that the graphite powder has an average particle size of 23-26 um [15-125 um]. Braun et al. also teaches that the composition is formed into a composite having a desired geometry by compression molding, injection molding or a combination. In the case of compression molding, the graphite and polymer powders are blended together and compressed using a pressure of 5-100 ( $10^6$ ) N/m<sup>2</sup> (5-100 MPa), and put under a pressure of 1-15 ( $10^6$ ) N/m<sup>2</sup> (*cold-molded, 1-15 MPa*) then the pressure was increased to 5-75 ( $10^6$ ) N/m<sup>2</sup> (*molded member pressure, 5-75 MPa*). Then the mold is cooled to a

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temperature in the range of 80-250 degrees C [*150-170 degrees C*]. Therefore, Braun et al. teaches all the claimed composition and pressure limitations and method steps.

***Claim Rejections - 35 USC § 112***

3. Claims 1-5, 8-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is rejected because it is still unclear what is meant by “bonding graphite powder by means of a thermosetting resin”. It is unclear what the graphite powder is bonded to. This is not explained in the body of the claim. It is unclear what is meant by “85-97 w.%,”. Also, it is unclear what is meant by “said complex is previously cold-molded at a pressure of 2 to 10 MPa” because it is unclear when the complex is previously molded. There is no antecedent basis for “a preliminary molded member”. It is unclear the way the claim written if the claim is now a product by process comprising the steps of forming a complex, cold-molding the complex and then molding at a pressure of 10-100 MPa.

Claim 8 is rejected because it is unclear what is meant by “said complex is previously cold-molded ... at a pressure of 2 to 10 MPa” because it is unclear when the complex is previously molded. There is no antecedent basis for “a preliminary molded member” and “molded into the final shape”.

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***Claim Rejections - 35 USC § 102***

4. Claims 1-2, 5, 8-9, 11-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Braun et al. (6,180,275).

Braun et al. teaches in column 5, lines 43-49, a composition containing 45-95 wt% graphite powder [85-97 wt%], 5-50 wt% polymer resin [3-15 wt%] and 0-20 wt% metallic fiber, carbon fiber and/or carbon nanofiber. Braun et al. teaches in column 4, lines 66-67, that the graphite powder has an average particle size of 23-26 um [15-125 um]. Braun et al. teaches in column 5, line 50 to column 6, line 4, that the composition is formed into a composite having a desired geometry by compression molding, injection molding or a combination. In the case of compression molding, the graphite and polymer powders are blended together and compressed using a pressure of 5-100 ( $10^6$ ) N/m<sup>2</sup> (5-100 MPa), and put under a pressure of 1-15 ( $10^6$ ) N/m<sup>2</sup> (cold-molded, 1-15 MPa) then the pressure was increased to 5-75 ( $10^6$ ) N/m<sup>2</sup> (molded member pressure, 5-75 MPa). Then the mold is cooled to a temperature in the range of 80-250 degrees C [150-170 degrees C]. Braun et al. teaches in column 2, lines 65-67, that the polymer can be phenolic, a polyester, etc.

***Claim Rejections - 35 USC § 103***

5. Claims 1-2 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Saito et al. (6,242,124).

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Saito et al. teaches a separator for a polymer electrolyte fuel cell in which the separator is made from a carbon composite material comprising (a) 100 parts by weight of an expanded graphite powder [62-91 %] and (b) 10-45 parts by weight of a thermosetting resin [9-28 %] dispersed in the expanded graphite powder wherein the graphite powder has an average particle diameter of 5-12 um and at least 80% of the total particles of the expanded graphite powder have particle diameters of 0.1-20 um. Saito et al. teaches in column 4, lines 52-56, that the thermosetting resin can be a polycarbodiimide resin, a phenolic resin, a furfuryl alcohol resin, an epoxy resin, urea resin, a melamine resin, or the like. Saito et al. teaches in column 6, lines 3-10, a composition comprising expanded graphite and a thermosetting resin shown in Table 1 was mixed and molded at a pressure of 100 kg/cm<sup>2</sup> [*9.81 MPa which rounds up to 10 MPa*] into a separator shape.

In the event any differences can be shown for the product of the product by process claims 1-2, as opposed to the product taught by Saito et al., such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of a showing of unexpected results. *In re Thrope* 227 USPQ 964; (*Fed. Cir. 1985*).

With respect to the product by process claims 1-2, the determination of patentability is based upon the product itself not upon the method of its production. *In re Thrope* 227 USPQ 964; *In re Brown* 173 USPQ 685; *In re Bridgeford* 149 USPQ 55; *In re Wertheim* 191 USPQ 90. Any difference imparted by the product by process limitations would have been

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obvious to one having ordinary skill in the art at the time the invention was made because where the Examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the Applicants to establish that their product is patentably distinct. *In re Brown 173 USPQ 685 and In re Fessmann 180 USPQ 324.*

6. Claims 1-2, 5 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Braun et al. (6,180,275).

Braun et al. teaches in column 5, lines 43-49, a composition containing 45-95 wt% graphite powder [85-97 wt%], 5-50 wt% polymer resin [3-15 wt%] and 0-20 wt% metallic fiber, carbon fiber and/or carbon nanofiber. Braun et al. teaches in column 4, lines 66-67, that the graphite powder has an average particle size of 23-26 um [15-125 um]. Braun et al. teaches in column 5, line 50 to column 6, line 4, that the composition is formed into a composite having a desired geometry by compression molding, injection molding or a combination. In the case of compression molding, the graphite and polymer powders are blended together and compressed using a pressure of 5-100 ( $10^6$ ) N/m<sup>2</sup> (5-100 MPa), and put under a pressure of 1-15 ( $10^6$ ) N/m<sup>2</sup> (*cold-molded, 1-15 MPa*) then the pressure was increased to 5-75 ( $10^6$ ) N/m<sup>2</sup> (*molded member pressure, 5-75 MPa*). Then the mold is cooled to a temperature in the range of 80-250 degrees C [150-170 degrees C]. Braun et al. teaches in column 2, lines 65-67, that the polymer can be phenolic, a polyester, etc.

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In the event any differences can be shown for the product of the product by process claims 1-2 and 5, as opposed to the product taught by Braun et al., such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of a showing of unexpected results. *In re Thrope* 227 USPQ 964; (Fed. Cir. 1985).

With respect to the product by process claims 1-2 and 5, the determination of patentability is based upon the product itself not upon the method of its production. *In re Thrope* 227 USPQ 964; *In re Brown* 173 USPQ 685; *In re Bridgeford* 149 USPQ 55; *In re Wertheim* 191 USPQ 90. Any difference imparted by the product by process limitations would have been obvious to one having ordinary skill in the art at the time the invention was made because where the Examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the Applicants to establish that their product is patentably distinct. *In re Brown* 173 USPQ 685 and *In re Fessmann* 180 USPQ 324.

7. Claims 3-4, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braun et al. (6,180,275) in view of Uemura et al. (4,737,421).

Braun et al. teaches in column 5, lines 43-49, a composition containing 45-95 wt% graphite powder [60-90 wt%], 5-50 wt% polymer resin [10-40 wt%] and 0-20 wt% metallic fiber, carbon fiber and/or carbon nanofiber. Braun et al. teaches in column 4, lines 66-67, that the graphite powder has an average particle size of 23-26 um [15-125 um]. Braun et al. teaches in

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column 5, line 50 to column 6, line 4, that the composition is formed into a composite having a desired geometry by compression molding, injection molding or a combination. In the case of compression molding, the graphite and polymer powders are blended together and compressed using a pressure of 5-100 ( $10^6$  N/m<sup>2</sup> [ $5-100\text{ MPa}$ ], the put under a pressure of 1-15 ( $10^6$  N/m<sup>2</sup> [ $1-15\text{ MPa}$ ] then the pressure was increased to 5-75 ( $10^6$  N/m<sup>2</sup> [ $5-75\text{ MPa}$ ]. Braun et al. teaches in column 2, lines 65-67, that the polymer can be phenolic, a polyester, etc.

Braun et al. teaches the claimed invention expect does not teach that the graphite powder had a average particle diameter of 40-100 um.

Uemura et al. teaches in column 7, lines 31-60, Examples 4 and 5, a fuel cell separator comprising a separator comprising fibrous cellulose, graphite powder, 44 um or less and a phenol resin.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a graphite powder with a diameter of 44 um or less because Uemura et al. teaches this is known in a separator composition comprising a phenol resin and since it has been held that where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

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***Double Patenting***

8. Claims 8, 10-11 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 7-8 of copending Application No. 09/660,291. Although the conflicting claims are not identical, they are not patentably distinct from each other because the copending application 09/660,291 claims the same fuel cell separator having overlapping composition ratios having a graphite powder with an average diameter of 15-125 um, cold-molding at a pressure of 2-20 MPa and then molding with a pressure of 10-100 MPa.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

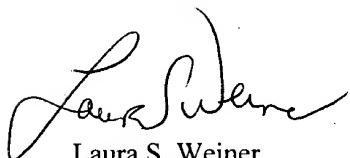
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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura Weiner whose telephone number is (703) 308-4396. The examiner works a flexible schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (703) 308-2383. The fax phone number for non-after finals is 703-872-9310 and the fax phone number for after-finals is 703-872-9311.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Laura S. Weiner  
Primary Examiner  
Art Unit 1745  
June 20, 2002